



## Bits & Pieces

Here it is, my second issue and already I am using another desktop publisher! Well, it may not be a different publisher, but it is brand new. It is Pixel Print Plus, version 3.1.

In just working with it briefly I have found it to be an excellent updated version of the popular Pixel Print program. If you do not already own Pixel Print now is the time to buy. If you already own the original program you can get the Plus version for \$10.00 and the original copy you purchased.

All of this is available from various dealers and:

**Lemke Software Development**  
2144 White Oak  
Wichita, KS 67207

In the May issue of the newsletter I neglected to print the address of the Video Vault which I reviewed as an excellent source for Spectrum repairs, in addition to having a huge catalog of Spectrum software and hardware at very competitive prices. So the address is:

**Video Vault Limited**  
140 High Street West  
Glossop, Derbyshire SK13 8HJ  
England

A little note on the Flow Chart program that was included in the May issue...the program is designed to be added to the end of any TS2068 BASIC program (it can also be merged). What

See Bits, next page

## Indiana Sinclair-Timex Users

### News Letter

JUNE 1988

Editor-Mike Fellerski



## A Traveling Program...

On a recent trip back from Florida it came to me that there are no decent vacation planner programs for the TS2068 or Spectrum. The type of program that would do Estimated Time of Arrival, fuel consumption, etc. based on the users own automobile data. It could also provide a map of some of the major interstates and cities.

Thinking about such a program reminded me of the old traveling salesman exercise. The exercise goes as follows, a map is drawn up with five to ten cities and the distances between the cities. Each of the cities is connected to other cities by roads. This can be graphed using points and lines to represent the cities and roads. The object of the exercise is to start at one city and find the shortest path for the salesman to visit all the remaining cities traveling between them (see diagram Travel). On a small scale, this can be done by hand. But what if you had one hundred cities or you had to

See Salesman, next page



## Command of the Month...

### TS2068 STICK Command

Function:	Returned	5 1 9
	Position	4 0 8
	Values	6 2 10

### STICK (n,m)

#### Parameters:

1=Joystick One  
2=Joystick Two

1=Read Joystick  
2=Read Fire Button

Firebutton Values: 0=Not Pressed  
1=Pressed

## Bits from front page.

the program (routine) is supposed to do is produce an on screen flow chart diagram (boxes and diamonds, etc.) of the basic program it is attached to. The routine will display one page at a time and is designed for screen dumps to a printer. User member Paul Holmgren gets credit for finding and debugging this neat little utility.

## Service Corner

Still no word from Larry Kenny on the disk interface I sent in for repair, but sources tell me that this time of year is very busy for Mr. Kenney's line of work.

Upon receiving my updated copy of Pixel Print Plus, I found that no matter what I tried, I could not load the program. I set it aside for a while and tried it again later with no success. I then packed it up, and sent it back to Mr. Lemke.

Within the time it takes for shipping, I received a new copy of the program from Lemke. With it came a note explaining that he (Mr. Lemke) had had cassette recorder problems, and that the problem has been resolved with a new recorder.

If you think you may have one of these early "poor" copies, and it will not load, feel free to let Stan (Lemke) know. On the Service Scale, I rate Lemke Software a 5.

1..2..3..4..5

Poor

Excellent



Sinclair

House

News/Notes

The AMX Mouse is currently available from the Video Vault (See address in Bits and Pieces) in England. They accept phone orders and Visa. Their phone number is 04574 66555.

The price is £69.99 and includes the mouse, interface for the Spectrum buss, the mouse operating system and a great graphics program. The AMX mouse is the best supported mouse for the Spectrum and works with the OCP Art Studio program.

For more info on programs, write me, Mike Fellerski c/o ISTUG, 513 Main St., Peru, IN 46970. Once you have used this real mouse, you'll never be satisfied with joysticks again.

## Salesman from front page.

find the best path for fifty groups of cities? Here is where the old Sinclair will come into play.

● =City (Node)  
- =Road (Path)  
8 =Miles (Length)

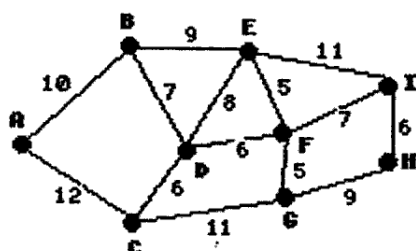


Diagram Travel

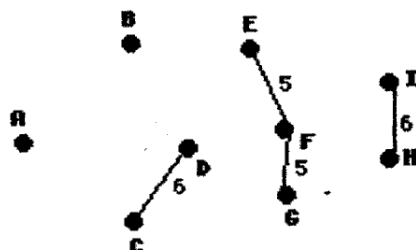
To find the best path for our salesman to follow we must have an algorithm. The algorithm we will use is a modified version of Kruskal's algorithm. This means we will use the Shortest Path First method.

In Kruskal's algorithm we accept a path in its turn if it does not form a cycle (an endless loop between cities) with paths already accepted, otherwise we reject the path. In addition to this we add two other conditions to meet our goal: A path under consideration must also 1) not cause a node (city) to have more than two paths already accepted to it and 2) the path must not form a cycle, unless the number of paths equals the number of nodes in the problem.

Let us walk through the example above. First, we consider the lowest value path. In our example it would be five, which is F-G, this will be our first path. The next path would be E-F which is also five. Since there are no more paths of five, we now consider the next shortest, six. We have H-I and C-D. D-F is also six, but it

Total

5  
5  
6  
6  
—  
22

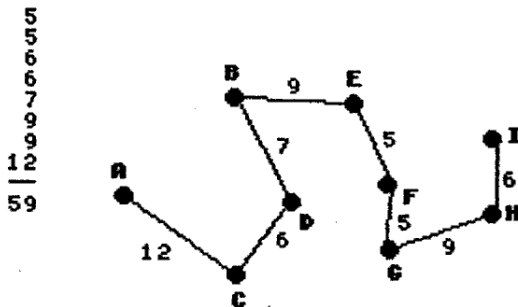


Unfinished Route

does not meet our requirements because it would give node F

three connecting paths. Next we move on to paths of length seven which gives us B-D (F-I fails our test). For the length eight we find only one path and it also fails, so we move on to nine which gives us B-E and G-H. Thus we are left only to connect node (city) A to the route, and only A-C, length 12 passes our test. Thus we now have the shortest path to visit all of the cities, and it looks like this:

Total



#### Completed Traveling Salesman Shortest Path

Such a method may not be very helpful to some vacation plans, but as you can see it does have its uses. A favorite example is for routing public telephone money collectors etc.

But how do I program this on my TS1000 or TS2068? Here are a couple of hints, first create an array  $V(n,n)$  where  $n$  is the total number of nodes. Second, number your nodes. Third, enter each of the path lengths into the array. For instance if the length of the path from node 1-2 is 10 then let  $V(1,2)=10$ . If there is no path between two nodes then assign the array 0.

Now set up another empty array (zeroed) to contain the number of paths connected to each node. This array would be of size  $n$ . Now that we have the data structures set up, all we need to do is write our code following the algorithm we stated above.

I will provide the answer (program) in the next issue in both BASIC and Pascal. Until then, give it a shot and see if you can code it.

--Mike



## STUG

the Indiana

Sinclair Timex Users

Group is a Not For Profit

Group dedicated to the educational use of Sinclair and Timex-Sinclair Computers, for both the hobbyist and the professional user. We aim to do this by keeping members informed of sources for software, peripherals, computer shows, seminars and other educational events.

We try to keep members aware of other sources of program listings and tips, by means of providing a newsletter 11 times a year for members, providing other newsletters obtained by user group swaps, and providing a library of programs that are public domain to all full members. Full Membership \$10.00 and Associate \$7.50 a year.

Membership is offered two ways (1) Full membership, which entitles a member to all of the above, plus the full technical support of the other members on both hardware and software, and the opportunity to attend meetings which are held eleven times a year, usually on the 4th Saturday of the month at 1:30pm. On months when a major holiday falls that weekend, the meeting will be on the 3rd weekend. There is no December meeting. (2) Is Associate membership, which entitles you to the newsletter (in which any member may place free ads) and full support.

I.S.T.U.G.  
513 East Main St.  
Peru, IN 46970

## Now Available:

The entire Time Designs Mag. Volume 3 in UU-Calc for the TS1000. This includes all of the articles, page numbers, issue numbers and more—all available for the ZX-81, TS1000, and TS1500.

Just send a Photocopy of your original UU-Calc cassette and \$5.00 for quality cassette, postage and handling to:

Bottle Cap Software  
1284 Brushwood Ave.  
Cincinnati, OH 45224

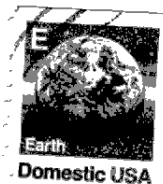
Volume 2 and 4 available this fall as a package deal—watch for a future announcement in this newsletter!



## FYI

Did you know that there are still thousands of TS1000 users out there still writing brand new programs for the machines. Write your regional users group for more information.

I.S.T.U.G.  
513 East Main St.  
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## Tricks of the Trade

Any one who has purchased an Aerco Parallel Printer interface within the last couple of years received a bonus program on the back of the Printer Driver code tape. The program is Jack Dohany's Relocatable Aerco Print Driver.

This program provides Aerco printer driver code that can be located at any reasonable place in RAM with 800 bytes available. But did you know that you can use this code to print from within Omnicalc 2 for the Spectrum?

Setup your system with your Aerco interface, your Spectrum ROM and your printer. Load the Relocatable Print Driver. Answer the questions in the driver program for your printer, then turn on the code with a RAND USR 64000. Next, LOAD "om64000", the Omnicalc program that does not use memory above location 64000.

The LPRINT calls will now work as usual. But in addition to this you may now COPY a histogram screen to the printer via the Print Driver's COPY routine. To do this you must tell the Omnicalc program where the COPY routine starts, by using option G of function X. Function X will ask you for the "Address?" and you need to type in 64450.

Now when you enter the Graphics or Histogram mode of Omnicalc, you can copy the screen to your fullsize printer by pressing CS/9 (Caps Shift 9).

Since I do not have the 2068 version of Omnicalc, I can only assume that this method will also work for that version.

Thanks again to Mr. Dohany for his great little Print Driver.

### Conference:

by vendors and users alike. Many of us picked up some great software and hardware buys as well as plenty of information about all our Sinclair computers. If you have never attended a conference, and you are heavy into Sinclairs, you can't afford to miss the next fest in your area, ask anyone who has been to one!

Yours Sinclairly, Mike.

## Curry Computer Drops Spectrum Software

Curry Computer has stopped importing software titles for the ZX Spectrum and compatible computers. The move to no longer carry the software came when suppliers in England raised minimum orders to \$1000.

Due to a decrease in Spectrum title sales, Curry has decided to liquidate all of their remaining Spectrum stock at rock bottom prices. Curry has also acquired a number of TS1000 titles and is also liquidating them.

When asked about QL, 2068 and 1000 products, Curry said that they would continue to provide software and hardware as long as there are products to sell, and a market for those products.

In addition, Curry also plans to continue sales of Sinclair User magazine from England.

Curry Computer  
P. O. Box 5607  
Glendale, AZ 85312  
1-602-978-2902  
1-800-628-2828 #950  
(orders only)

## Midwest Sinclair Conference a Success

The 1988 Midwest Timex and Sinclair Conference held at the Beck Center for the Arts in Lakewood, OH was well received

See Conference, next column